

CLAIMS

1. Method for producing an induced serum composition from blood, wherein blood cells contained in blood are transiently or stably transformed with at least one nucleic acid molecule, preferably a nucleic acid molecule which codes for at least one therapeutically and/or diagnostically important protein or an effector molecule, and an induced blood composition is obtained whose blood cells transiently or stably express and possibly secrete the therapeutically and/or diagnostically important protein and/or the effector molecule.
2. Method according to claim 1, wherein the induced blood composition is a blood composition which contains a therapeutically and/or diagnostically important protein in higher concentration than an untransformed blood composition, for example cytokines such as natural or modified IL-1Ra (IRAP, Interleukin-1 receptor antagonist).
3. Method according to claim 1, wherein the induced blood composition is a blood composition in whose blood cells at least one effector molecule, preferably protein or RNA, is expressed, which in untransformed blood cells is expressed not at all, or not in this amount.
4. Method according to one of the foregoing claims, wherein the blood is removed from a patient in a removal system and the blood is transformed with the at least one nucleic acid molecule in the removal system, without the blood cells to be transformed being previously separated from other blood components.
5. Method according to one of claims 1-4, wherein blood is removed from a patient, blood cells, particularly nucleated cells, are separated from other blood components, the blood cells are transformed and are incubated in a medium with or without serum or in pure serum.

6. Method according to one of claims 1-3, wherein the blood is removed from a patient with a removal system, filled into another vessel and transformed in this vessel without previously separating the blood cells to be transformed from other blood components.
7. Method according to one of the foregoing claims, wherein the nucleic acid molecule, particularly DNA or RNA, immobilized on solid supports, for example large or small beads, for example of glass, or magnetic small spheres or the wall of the syringe, is used for transformation.
8. Method according to one of the foregoing claims, wherein the nucleic acid molecule, particularly DNA or RNA, possibly labeled with a labeling substance, is used for the transformation.
9. Method according to one of the foregoing claims, wherein the nucleic acid molecule, particularly DNA or RNA, is transformed together with an additive which increases the transfection and/or expression of the nucleic acid molecule.
10. Method according to one of the foregoing claims, wherein the nucleic acid molecule is transformed by electroporation.
11. Method according to one of the foregoing claims, wherein the nucleic acid molecule codes for a molecule which induces, represses, or regulates the expression of an autosomal protein, for example, an anti-sense construct, RNA element, transcription factor, or a transposable element.
12. Method according to one of the foregoing claims, wherein the nucleic acid molecule is contained in a vector, for example, in a plasmid or in a virus.

13. Method according to one of the foregoing claims, wherein the nucleic acid molecule is present functionally connected to at least one regulatory element, for example, a promoter, enhancer, or intron, particularly a blood cell specific regulatory element.
14. Method according to one of the foregoing claims, wherein the nucleic acid molecule is present, functionally connected to nucleotide fragment coding for a signal peptide for protein secretion from the cell.
15. Method according to one of the foregoing claims, wherein, after the transformation, expression, and secretion of the at least one induced therapeutically and/or diagnostically important protein from the transformed cells into the serum, the cells are separated from the serum and an induced serum is obtained.
16. Method according to one of the foregoing claims, wherein the at least one nucleic acid molecule is transformed using liposomes, viral vectors or bound to micro glass beads.
17. Method for the transformation of cells, particularly of cells contained in blood, for example blood cells, with nucleic acid molecules, wherein the cells or blood cells are brought into contact with the nucleic acid molecules, the cells or the blood cells present in the blood are transformed and stably or transiently transformed cells or blood cells are obtained.
18. Method according to claim 17, wherein the nucleic acid molecules before the transformation are covalently bound, in particular with acid lability, to micro glass beads.

19. Method for treating the human or animal body, wherein blood is removed, preferably with a syringe, from the human or animal body, a method according to one of the foregoing claims is performed and the induced blood composition is reapplied to the human or animal body, if necessary the blood serum alone after separation of the transformed blood cells and other blood components.
20. Use of micro glass beads, particularly micro glass beads having bound nucleic acids, for the transformation of whole blood, in particular nucleated cells in whole blood, in particular for the expression and secretion of proteins in blood, particularly blood cells.
21. Use of micro glass beads, particularly micro glass beads having bound nucleic acids, for the transformation of biological cells, particularly animal, plant, or human cells.
22. Use of blood, particularly whole blood, for the transformation of nucleic acid molecules coding for therapeutically and/or diagnostically important proteins or effector molecules, in the blood cells of the blood, particularly for gene therapy and/or the treatment of leukemia, for the treatment of traumatic, degenerative, chronic inflammatory diseases of the nervous system, the motor apparatus, or various internal organs.
23. Use of blood for the production of a medicament for gene-therapeutic purposes and/or the treatment of leukemia, for the treatment of traumatic, degenerative, chronic inflammatory diseases of the nervous system, the motor apparatus, or various internal organs.
24. Use of nucleic acid molecules, particularly coding for therapeutically and/or diagnostically important proteins or effector molecules, for the transformation of blood or blood cells and the expression and possibly secretion of the

therapeutically and/or diagnostically important protein or effector molecule, for example for leukemia treatment, for the treatment of traumatic, degenerative, chronic inflammatory diseases of the nervous system, the motor apparatus, or various internal organs.

25. Use of nucleotide molecules, particularly coding for therapeutically and/or diagnostically important proteins or effector molecules, for the production of a medicament, for the transformation of blood or blood cells and the expression and possibly secretion of the therapeutically and/or diagnostically important protein or effector molecule, for example for the treatment of traumatic, degenerative, chronic inflammatory diseases of the nervous system, the motor apparatus, or various internal organs.